

Attachment – Case Studies

Project ADF001

Fast-tracking solutions for reliable and climate-responsive wine-grape production.

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Introduction

This document is the attachment to the 2-page TIA fact sheet: Botrytis Project Trial Results.

Project ADF001 aimed to help Tasmanian wine-grape producers design and run simple, scientifically credible producer-led trials to improve management of botrytis bunch rot (BBR) and support wider knowledge sharing across the sector. The target disease for some trials was powdery mildew (PM) because this disease can pre-dispose fruit to more severe BBR.

Thirteen participating wine businesses conducted 23 modified strip trials over two seasons of relatively benign conditions for BBR in Tasmania. Here we present case studies, in no particular order, for 12 of the 13 participating wine businesses who were able to run their trials to completion.

Each case is a description of the participant's production context and motivation, their perception of the commercial outcomes and a summary of trial results. For brevity, trial results are presented as averages for each trial strip rather than as graphs of moving window averages. The latter displays spatial variability in disease severity and can aid deeper interpretation of trial results.

Methods

Pseudonyms are used for wine business participants to maintain confidentiality and anonymity. Participant codes reflect the vineyard in which they operate (V_n) and the person (P_n) at that vineyard engaging in the project. Total vineyard area is provided as a range, rather than the absolute area.

The following publications provide a description of the approaches used and their effectiveness:

Evans, K.J. 2025. "Producer Led Trials. A guide for winegrape producers and service providers." University of Tasmania. Available [here](#).

Evans, K.J. and Higgins, V. 2026. Toward systemic scaling of producer-led trials: evidence from a structured, adaptive and supported approach in vineyards. *Australian Journal of Grape and Wine Research*, in press.

Table 1 lists the registered products used in various trials and Figure 1 summarises attributes of participating wine businesses and trial sites.

TABLE 1. Common names for registered products applied in the trials as ‘current practice’ or ‘test treatment’. Trials 5 and 17 also included a test treatment of Td81b, a biological product containing *Trichoderma harzianum*. These products were selected by the participating wine businesses. The University of Tasmania does not endorse or recommend the products of any manufacturer referred to.

Registered product	Active ingredients	Trial number
Cabrio®	pyraclostrobin	23
Digger®	difenoconazole	9, 11, 20, 22
Intervene®	polyoxin D zinc salt	9, 11, 20, 22
Luna® Experience	fluopyram + tebuconazole	23
Novellus®	geraniol, eugenol + thymol	18
Scala®	pyrimethanil	5, 6, 7, 17
Serifel®	<i>Bacillus amyloliquifaciens</i> strain MB1600	19
Swap®	cyprodinil + fludioxonil	9, 20
Switch®	cyprodinil + fludioxonil	1, 2, 3, 4, 13, 14, 15
Teldor®	fenhexamid	10, 21, 23
Vivando®	metrafenone	10, 21

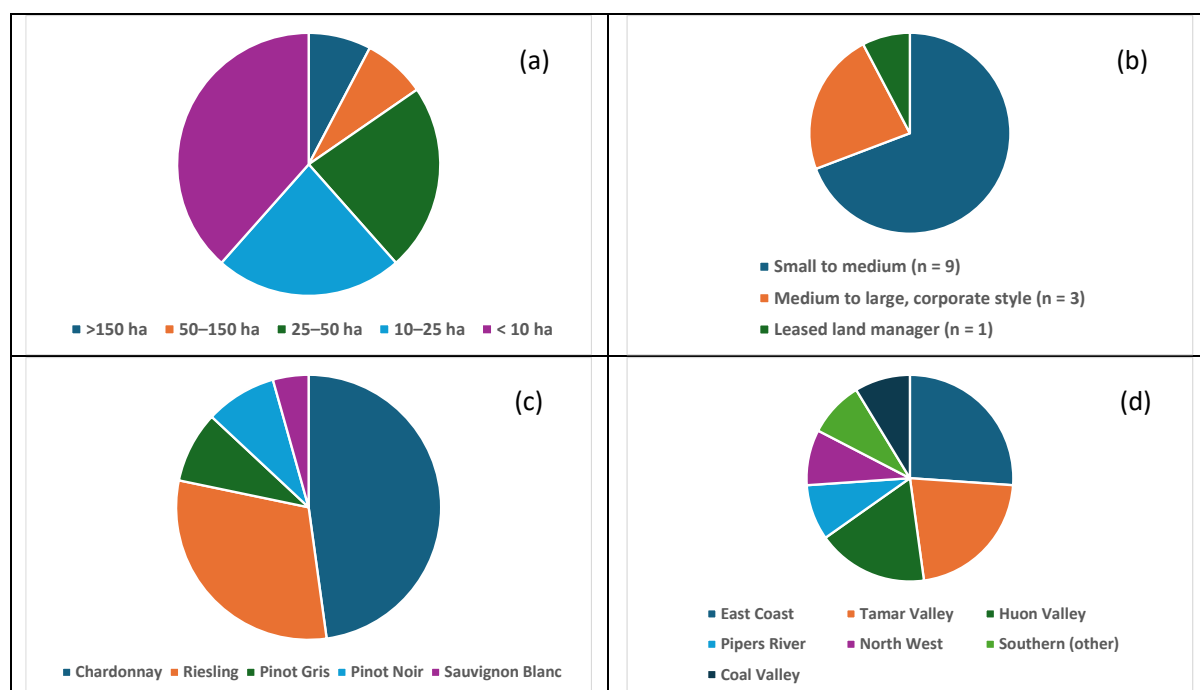


FIGURE 1: Attributes of crop-protection trial sites (n = 23): (a) size of vineyards conducting a trial (n = 13) (b) type of wine businesses (n = 13), (c) grape varieties (n = 23) and (d) region of Tasmania (n = 23) where the average growing season temperature (GST) for 1995–2024 ranged from 13.6°C to 15.9°C (<https://myclimateview.com.au/about>). Eight wine businesses supplied fruit to their own winery. Four wine businesses managed other vineyards in different regions of Tasmania and/or mainland Australia.

Case Study V4

Vineyard	
Region of Tasmania	Pipers River
Total area	< 10 ha
Study participant	
Participant code	V4P1
Trial site	
Variety and trellis system	Chardonnay on unilateral Scott Henry trellis.
Destination of grapes	Sparkling wine; contract winemaking
Trial topic/s	Leaf removal by hand and spray technique
Trial number (identifier)	1 and 12
Trial results and outcomes	Summarised below
Mid-flowering in 2023	First week of December (~ 5-6 Dec.)
Mid-flowering in 2024	Second week of December (~ 10-13 Dec.)

Production Context and Motivation

V4P1 operates a high-yielding, high-input production site. They strive for continual improvement in viticultural practices and outcomes by integrating scientific and experiential knowledge. V4P1 aims for maximum disease prevention by responsible use of agricultural chemicals with minimal environmental impact. V4P1 viewed participation in the project as part of their normal “*continual improvement cycle*”, thus contributing to their goal of “*continually just trying to raise the bar.*”

Botrytis bunch rot (BBR) at this site is generally an issue one in three years, with about 20% crop loss in 2022–23. V4P1 said: “*that is a problem I have been trying to resolve over time....I hadn’t been able to fix it. Look we were unsure what the problem was. Was it the fungicide application, or was it something else, like, the density of the canopy and they were probably the two major questions which we addressed in the course of the trial.*”

Commercial Outcomes

Grape yields were relatively high during both trials. V4P1 noted that the “*commercial outcome*” of improved BBR management rot (BBR) was “*very attractive.*” “*We have learned how to avoid a drop in yield in a difficult season.*” “*The Chardonnay yielded something in the order of 15 to 17 tonnes per hectare. At \$65 a bottle, that’s a very strong commercial package that would be unusual in the world, really. That’s a high input system giving a high output in dollars, so I think that’s another step in trying to even out the regularity of yield and quality in Tasmania.*”

The extra ripening time afforded by improved BBR management provided an “*extra boost on quality*”. V4P1 said: “*It’s a dramatic impact on the final assessment of quality...that flavour content sets you apart [from other regions]you’re probably increasing the value of the bottle by \$20 a bottle, or something like that, because you’re capturing extra flavour, and it is your distinctive regional profile.*”

The trials improved V4P1’s awareness of how canopy density can impact disease management and prevention. They noted that “*when you actually start leaf plucking and looking at the difference, you realise how much the leaf density was impacting on what we do.*” One of the unintended outcomes of the trial was understanding the potential to invest more in manual leaf-plucking. They said: “*The*

first year's results have put in place a permanent change here, too. So, leaf plucking will be a permanent part of the Chardonnay viticulture, and I think that's the confidence coming from being able to control that disease." "For a fairly minimal cost, the \$100 a hectare, whatever it is, it's at a time of year when you've got quite a lot of labour doing shoot positioning and other things, it means that it's a minimal add-on to your normal operation. So, yes, I think that's a resounding impact of the program."

A big payoff for V4P1 is cleaner fruit. When there is less mouldy fruit in the crop *"...the people who most appreciate it are the grape pickers. Because they walk into a vineyard that's clean, and they just love picking because there's no sorting and no rules about what to pick and what to not pick, and they can just go for it. They love that, and often they'll come up at the end of the season and say, great fruit this year."*

V4P1 consults to several other vineyards. They said that *"the learning rapidly spreads to the other sites if necessary, and it raises awareness of the site impacts to do with particularly, weather influence on your disease pressure."* They described the spread of knowledge in this manner as a *"chain reaction"*.

Trial Results

2023-2024

Trial 1: Mean botrytis bunch rot (BBR) severity and incidence for 168–200 bunches per trial strip (row) of clone '76' on March 12, 2024. There were some locations within the trial strips where BBR severities and incidences were similar for single and double-sided leaf removal.

Leaf removal by hand on December 5, 2024.	Spray technique* on December 12, 2024.	BBR incidence (%)	Mean BBR severity (%)
Morning side of canopy	Whole canopy	7.0	0.8
Morning side of canopy	Bunch zone only	7.7	2.0
Both sides of canopy	Whole canopy	2.0	0.4
Both sides of canopy	Bunch zone only	3.3	0.6

* Switch® fungicide tank-mixed with a spreader.

2024-2025

Trial 12: Mean botrytis bunch rot (BBR) severity and incidence for 200 bunches per trial strip (row) on March 16-17, 2025.

Chardonnay clone	Leaf removal by hand on December 2, 2024.	BBR incidence (%)	Mean BBR severity (%)
95	Both sides of canopy	6	0.18
95	Morning side of canopy	0.5	0.03
76	Both sides of canopy	1.5	0.02
76	Morning side of canopy	1	0.02

Case Study V6

Vineyard	
Region of Tasmania	Tamar Valley
Total area (ha)	> 150 ha with operations at other sites
Study participant	
Participant code	V6P1
Trial site	
Variety and trellis system	Riesling with vertical shoot positioning
Destination of grapes	Still wine, own winery
Trial topic/s	Leaf removal by hand and spray technique
Trial number (identifier)	2 and 13
Trial results and outcomes	Summarised below
Mid-flowering in 2023	Second week of December (~ 10-11 Dec.)
Mid-flowering in 2024	Second week of December (vineyard average ~ 8-10 Dec.)

Production Context and Motivation

Cultural, chemical and biological inputs to viticulture are used to achieve consistent yields and objectives for profitability and minimising costs for this corporate style business. Effective cultural practices are their “*first line of defence*” for disease management and underpin the spray program. Management of botrytis bunch rot (BBR) is an “*extremely high priority*” at this “*high pressure*” site to limit regular crop losses of 10–15% and loss of fruit quality. V6P1 has hosted multiple trials over sites and seasons because “*Every time you do a trial, you learn something new.*”

Commercial Outcomes

The trial results demonstrated to V6P1 that they should continue to spray the whole canopy rather than directing the spray to the fruiting zone. It was a “*sigh of relief*” because the trial provided sufficient evidence that “*we are doing our best practice currently and that's a great affirmation to myself.*” “*I have great confidence in our current program now and I don't need to add another layer to that.*” It means V6P1 can invest effort in other trials on another topic or area “*to look at some savings or quality benefits there.*”

V6P1 viewed the trial results as a “*fantastic win*” and beneficial to their mental health given the high stakes of managing a large-scale operation, and the stress of making decisions with the potential for significant financial consequences. The trial results “*supports me and makes my job easier.*” They said that in the past they may have implemented a change, just so they could demonstrate that they had tried it “*without really understanding is it making a difference.*” The trial approach delivers “*really clear, succinct data of the botrytis levels*” that “*I can take to my superiors or peers that understand that data and go, yeah actually, that's a really clear result, let's not worry about trying this method, let's focus on this, this seems to be working and doing well for us, so we'll go down this path.*”

The trial process also provided V6P1 with the opportunity to introduce an innovation in the disease assessment method so that vineyard workers in future would have an unambiguous and repeatable process to prevent sampling biases. They said: “*.....when it comes to humans, so yeah, having a very set structure that creates a definite repeatable process is key to a good trial, I think.*”

V6P1 was confident that the conclusive trial results and positive impact on their disease management practices would hold up in challenging seasons. *“It's good to have tangible results at the end as well that are conclusive. It doesn't always work that way but it's great when you see those conclusive results and you can either change a practice or not change a practice perhaps from those results.”*

Trial Results

2023-2024

Trial 2: Mean botrytis bunch rot (BBR) severity and incidence for 280–288 bunches per trial strip (row) on March 22, 2024. There were some locations within the trial strips where BBR severities and incidences were similar for any given treatment comparison.

Leaf removal by hand on January 3, 2024.	Spray technique* on January 4, 2024.	BBR incidence (%)	Mean BBR severity (%)
No leaf removal	Whole canopy	18	3.8
No leaf removal	Bunch zone only	15	2.1
Leaf removal	Whole canopy	8.2	2.5
Leaf removal	Bunch zone only	20	3.6

* Switch® fungicide tank-mixed with a wetting agent.

2024-2025

Trial 13: Mean botrytis bunch rot (BBR) severity and incidence for 272 bunches per trial strip (row) on March 31, 2025.

Leaf removal by machine (both sides) on November 13, 2024.	Spray technique* on January 22, 2025.	BBR incidence (%)	Mean BBR severity (%)
Leaf removal	Bunch zone only	40	7.6
No leaf removal	Bunch zone only	45	9.2
No leaf removal	Whole canopy	62	11.8
Leaf removal	Whole canopy	36	4.8
No leaf removal	Whole canopy	60	9.7

* Switch® fungicide @ 2–4 mm berries, applied later than intended

Case Study V8

Vineyard	
Region of Tasmania	East Coast
Total area	10–25 ha
Study participant	
Participant code	V8P1
Trial site	
Variety and trellis system	Riesling (Trial 6) and Chardonnay (Trial 7), on split-Lyre trellis
Destination of grapes	Still wine
Trial topic/s	Fungicide omission and adjuvant omission
Trial number (identifier)	6 and 7
Trial results and outcomes	Summarised below
Mid-flowering in 2023	Third week of November (~ 17–21 Nov.)

Production Context and Motivation

V8P1's goal is “*growing moderate yield of good fruit*” for wines that “*capture and retain more of the fruit aromas and flavours*” that “*showcase our site and season*”. As a family business, they are mindful of the sustainability and longevity of the site.

V8P1 emphasised that disease management requires being “*light on your feet and ready to adapt*” to seasonal conditions. Severe botrytis bunch rot (BBR) reduces fruit yields and quality, although V8P1 tolerates low levels of BBR in white grape varieties. BBR was problematic in the high rainfall seasons of 2022 and 2011.

V8P1 is open to experimentation because “*you're always learning, always trying something different to help your situation.*” With regard to crop protection, V8P1 said: “*Well, you follow some spray program guidelines, and you sort of ask yourself, are they totally necessary? Are they working? Can you maybe cut back on a spray in certain situations? So that's something to evaluate.*”

Commercial Outcomes

V8P1 perceived that the trial results were “*fairly definitive*”. They said: “*From my trial I realised that the treatment I used helped me grow more fruit and better quality fruit. So economically ... it helped me to be more profitable. So that's what we're trying to do, just everything we do better and maximise your return.*” V8P1 stated that “*it was no question to just keep going with that treatment in the following season.*”

Trial Results

2023-2024

Trial 6: Mean botrytis bunch rot (BBR) severity and incidence for 184–208 Riesling bunches per trial strip (row) on March 20, 2024. There were significant differences in the magnitude of BBR severities and incidences at all locations along the trial strips.

Scala® fungicide applied on November 21, 2023, at early capfall	BBR incidence (%)	Mean BBR severity (%)
Yes	5.3	0.6
No	18	3.2

Trial 7: This trial was the same as Trial 6 except the vines were variety Chardonnay. There was also a second test treatment in which a spreader (adjuvant) was omitted from tank-mixture containing Switch® for the spray application on January 5, 2024. BBR was not detected anywhere in the trial area.

Case Study V2

Vineyard	
Region of Tasmania	Southern Tasmania
Total area	10–25 ha
Study participant	
Participant code	V2P1
Trial site	
Variety and trellis system	Pinot Noir on Scott Henry trellis
Destination of grapes	Still wine, contract winemaker
Trial topic/s	Alternative spray program
Trial number (identifier)	11 and 22
Trial results and outcomes	Summarised below
Mid-flowering date in 2023	Third week of December (~ 15 Dec.)
Mid-flowering date in 2024	Third week of December (~ 17 Dec.)

Production Context and Motivation

V2P1 sells grapes and wine under their own label. The site experiences high humidities given its proximity to a large body of water. A key viticultural approach is *“managing canopies to maximise airflow and to avoid the buildup of humidity in canopies”* plus disease prevention using protective fungicides. V2P1 explained that *“we’re doing it in a way that [...] from my experience is going to give us a better narrative about our wines’ environmental credential and therefore allow us to be at the [desired] price point in the market.”* They also believe in caring for the environment for future generations. V2P1’s participation in the project was integral to their ethos of continually improving on each season and remaining in a state of continual enquiry.

Regarding disease management, botrytis bunch rot (BBR) has not been a significant issue: however, there have been years when BBR exceeded thresholds set by the fruit buyer. V2P1 has used the same combination of spray materials to prevent BBR for 20 years. They were motivated to try alternative products perceived to have lower environmental impact and to mitigate the potential for fungicide resistance. They perceived benefit in gaining information directly from a trial because they were sceptical of information supplied by chemical suppliers: *“they’ve got a product to sell and [...] They’re always going to claim that that’s the best thing since sliced bread.”*

Commercial Outcomes

V2P1 stated that their participation in the project had led to change in their disease management practices. More specifically it had given them *“confidence about using a range of chemicals that will have a lesser environmental impact.”* V2P1 explained that this gave them more flexibility. *“I’ve learned that we have got some options to move away from the traditional application, the three-spray applications that we’ve used for 20 years for botrytis.”* V2P1 said they had also adopted a few new practices because of their participation in the project activities, such as *“those little strips that we put into the vineyard to test the extent to which we’ve got coverage.”*

V2P1 gained confidence in their continued use of the Scott Henry trellis system, because they had heard another more experienced winegrower discuss it during the project workshops, *“I said to [my employee], you know, we’re on the right track, mate.”* They were also planning to remove trees that

were shading vine rows and contributing to increased disease – a consequence of knowledge exchanges at the project workshops.

V2P1 is now working on how to increase productivity: *“One of the lasting things is, instead of me just accepting that we’ll produce, on average, five or six tonne of fruitwe’ll try and aim to get eight each year..... We get good prices here, because the quality of the fruit’s very high. So, that all goes to producing a more financially sustainable aspect of the farm. So, it’s that productivity piece.”*

V2P1 noted that, overall, the project gave them structure to initiate change in their operational practices: *“I think many people are motivated towards improving their productivity, reducing their environmental impact, and then having a structure for that. You have a thought about these things, but then having a structure for it and an intervention is what gets you there.”*

V2P1 is helping others establish vineyards in the region and has been able to share learnings with people beyond the project by drawing upon *“useful conversations and opportunities and learnings”* from the project activities. Strengthened knowledge and networks are important to V2P1 because *“that’s how change happens.”* V2P1 believes that trialling leads to slow change but could influence those growers who may be *“a bit more sceptical and conservative,”* because *“they look over the fence,”* to see if something is working.

Trial Results

2023-2024

Trial 11. The test treatment was the current spray program with substitutions of products for four different spray applications between mid-November and mid-late January. The sequence of spray applications for current practice was sulfur then Scala® then Teldor® then Teldor®. The corresponding sequence for the test treatment was Digger® then Intervene® then Intervene® then Intervene®. Powdery mildew and BBR were not observed anywhere in the trial area.

2024-2025

Trial 22 – same site as Trial 11 in 2023/24. The test treatment was the current spray program with substitutions of products for three different spray applications between early December and mid-January. The sequence of spray applications for current practice was [Teldor® + sulfur] then Scala® then [Teldor® + sulfur]. The corresponding sequence for the test treatment was Intervene® then [Intervene® + Digger®] then [Intervene® + Digger®]. Powdery mildew and BBR were not observed anywhere in the trial area.

Case Study V9

Vineyard	
Region of Tasmania	Coal River Valley
Total area	50–150 ha
Study participant	
Participant code	V9P1 and V9P2
Trial site	
Variety and trellis system	Riesling with vertical shoot positioning
Destination of grapes	Still wine, own winery
Trial topic/s	Omission of a biological fungicide
Trial number (identifier)	19
Trial results and outcomes	Summarised below
Mid-flowering in 2024	Second week of December (~ 8 Dec.)

Production Context and Motivation

Botrytis bunch rot (BBR) develops in the Riesling when the weather is favourable – up to 20% of bunches affected in some seasons. V9P1 and V9P2 want to minimise BBR incidence in the Riesling so that the grapes can be harvested by machine. They also want to reduce or eliminate the task of having to remove mouldy bunches prior to harvest. Conducting a trial was seen as a way of reviewing their disease management practices.

Commercial Outcomes

The trial results helped V9P1 and V9P2 question the value of applying the scheduled biological product under the seasonal conditions experienced. V9P2 said: *“Just to see a little tweak to what we do, it can make a little difference, or it can make no difference. It was interesting to see the eradication of a simple chemical can make no difference, so are we wasting our time, are we spending that money wisely if we’re getting no outcome or difference from it? That’s probably the biggest benefit for that for me.”*

V9P1 and V9P2 thought the trial process provided prompts about *“continually checking and asking questions of what we are doing, what the outcome we’re trying to achieve is and how we go about it. That’s a good lesson. [...] It might have lit the fuse a little bit, opened the mind to go, what happens if we do something a little different from the norm, what if we do this versus this, do we get that quality, do we get the yields, do we get less disease pressure, there’s all that to be considered.”*(V9P2)

Trial Results

2024-2025

Trial 19. Mean severity and incidence of botrytis bunch rot (BBR) for 232 bunches per trial strip on April 1, 2025. The trial strips treated with Serifel® were either upslope or downslope of trial strip not treated with Serifel®. Omitting Serifel® had no negative impact under conditions where low levels of disease were observed.

Fungicide applied on December 27, 2024	BBR incidence (%)	Mean BBR severity (%)
Serifel®	3.9	0.21
No Serifel®	2.6	0.08
Serifel®	3.0	0.05

Case Study V5

Vineyard	
Region of Tasmania	North West
Total area	25–50 ha
Study participant	
Participant code	V5P1
Trial site	
Variety and trellis system	Chardonnay clone Mendosa; 4-arm arched-cane with vertical shoot positioning.
Destination of grapes	Sparkling wine or Pet Nat wine, own winery
Trial topic/s	Leaf removal by hand and fungicide substitution (chemical versus biological)
Trial number (identifier)	5 and 17
Trial results and outcomes	Summarised below
Mid-flowering date in 2023	Second week of December (~ 10 Dec.)
Mid-flowering date in 2024	Third week of December (~ 20 Dec.)

Production Context and Motivation

V5P1 described their strategy for the vineyard as *“a lot more sustainable, and heading down the organic path”*. They strive to apply sprays as needed rather than taking a *“spray-it-no-matter-what approach”*. They also prioritise canopy management for *“...getting sunlight into the canopy”*. V5P1 is motivated to continually improve practices, buoyed in part by direct feedback from the on-site winery.

Botrytis bunch rot (BBR) is generally distributed relatively evenly at the trial site with levels sufficiently high in 2022 to force a decision for the crop to be harvested early for Pet Nat and sparkling wine. V5P1 said *“It’s quite critical for us with the late season botrytis pressure where, if we can gain 10 or 12 ripening days, that could be the difference from something of high quality versus [fruit] covered in botrytis or forced our hand into picking it earlier.”* Previous in-vineyard trials have led to a significant change in their practices; however, V5P1 had not previously had the capacities to trial different chemicals *“side by side”*.

Commercial Outcomes

V5P1 said: *“I think the most valuable thing for me was the impact of what a product can have, especially applied in the middle of a growing season and the roll-on effect that can have at the end of the season when we’re actually going into harvest. [...] So, I think just that little bit of confidence that a part of the trial that we might have done can help us gain that extra little window [for ripening fruit]. That’s probably the most important information that along those lines can work.”*

V5P1 also learned from their own trials and those of other trial collaborators in a way that *“shifted our mindset I think in our timing of leaf plucking in particular”*. They noted that from other trials that if machine plucking was done too late that it led to berry skin damage. *“We need to look to bring that back earlier in the growing stage of our growing season just to help literally reduce that risk of skin damage.”*

V5P1 stated that a net benefit to the business was the skills and knowledge gained by them and their two employees. A key skill gained was accurate assessment of pre-harvest disease levels to support decisions about leaving fruit on the vine for longer for better winemaking outcomes. The trial process *“keeps not only myself engaged in it but them [the employees] as well, like they have something that they can see that’s happening, it’s not just you’re putting on a product for the sake of it, they can actually see something happening.”*

V5P1’s leadership in running trials during the project was recognised by winegrowers who were not part of the project. These growers had contacted V5P1 to ask them about their results. V5P1 noted that *“[they] actually wanted my point of view [...] and actually want[ed] to come and visit our site [...] in return, we’ve been able to go to their end.”*

Trial Results

2023-2024

Trial 5: Mean botrytis bunch rot (BBR) severity and incidence for 200–224 bunches per trial strip (row) on March 12, 2024. Results need to be interpreted with care given the relatively low BBR severities when the trial was assessed. The incidence of BBR continued to increase after March 12 and prior to harvest on March 22, as evidenced by the number of rotting bunches removed per row

Fungicide applied during flowering in 2023	Leaf removal by hand ^b on January 29, 2024.	BBR incidence (%)	Mean BBR severity (%)	Number of rotting bunches removed after March 12
Scala® on Dec. 13	No	2.4	0.27	11
Scala® on Dec. 13	Yes	1.0	0.08	56
Td81b ^a on Dec. 19	No	0	0	18
Td81b ^a on Dec. 19	Yes	0	0	17

^aBiological product containing *Trichoderma harzianum*

^bEast side only. Mechanical leaf removal on both sides of the canopy had been applied to entire site previously.

2024-2025

Trial 17: Mean botrytis bunch rot (BBR) severity and incidence for 208–224 bunches per trial strip (row) on March 24, 2025. BBR severities in the southern half of each trial strip were likely influenced by water from a pivot irrigator in an adjacent field. It is not known if the additional surface water was spread evenly across all trial rows.

Fungicide applied during flowering in 2024	Leaf removal by hand ^b on January 10, 2025.	BBR incidence (%)	Mean BBR severity (%)
Td81b ^a on Dec.13	Yes	16	1.2
Td81b ^a on Dec. 13	No	15	1.5
Scala® on Dec. 20	Yes	8	0.5
Scala® on Dec. 20	No	18	1.3

^aBiological product containing *Trichoderma harzianum*

^bEast side only. Mechanical leaf removal on both sides of the canopy had been applied to entire site previously.

Case Study V1

Vineyard	
Region of Tasmania	Huon Valley
Total area	< 10 ha
Study participant	
Participant code	V1P1
Trial site	
Variety and trellis system	Chardonnay with vertical shoot positioning.
Destination of grapes	Sparkling and still wine, own winery
Trial topic/s	Fungicide substitution (alternative chemistry) and fungicide omission (sulfur for powdery mildew)
Trial number (identifier)	9 and 20
Trial results and outcomes	Summarised below
Mid-flowering date in 2023	First week of December (~ 2 Dec.)
Mid-flowering date in 2024	First week of December (~ 2 Dec.)

Production Context and Motivation

V1P1's goal is to produce fruit of the highest quality using environmentally friendly products and a cost-effective spray program. V1P1 – a winemaker - has been steadily gaining the confidence and knowledge to manage a vineyard while facilitating the development of their employees. V1P1 is motivated to acquire knowledge that increases their capacity to manage the vineyard with less reliance on external advisors. Experimentation is a means to build confidence in and scale-out alternative practices.

Botrytis bunch rot (BBR) has been present at low levels in the trial block. Powdery mildew (PM) is a significant issue if not managed effectively.

Commercial Outcomes

V1P1 said that the trials helped them find a substitute chemical *“which is organic registered”* to manage BBR. They noted that *“...we think it's a soft chemical that we can use to substitute from a harsher chemical.”* The trial also helped them find ways to encourage beneficial predators in the vineyard, such as reducing the amount of sulfur used. V1P1 could see the potential of eliminating a sulphur spray in the early spring and *“a whole pass of the tractor.”* V1P1 opined that *“If we weren't part of the trials I wouldn't have gained the technical knowledge to know where we might be able to make these changes.”* Overall, *“The trials have supported what we wanted to achieve”*.

The gain in technical knowledge from the trials influenced V1P1 to make decisions without sole reliance on external advice. Involvement in the trials helped V1P1 reflect on the recommendations received previously for spray programs that might be *“dosing our vineyard in a lot more stuff than it needs and harsher stuff than it needs [...] it's really challenged that. It's given us the confidence to test that.”* The trials also reinforced what practices were working well.

Knowledge gained about spatial variability in BBR severities across the block had implications for which fruit were selected for sparkling or still wines. The area that was more prone to BBR had been previously picked for sparkling, as *“we'd just gone 'oh well, let's just take that bit without stopping to think much about it.’”* The new knowledge meant *“it made picking slightly trickier”* as they had to be

aware of where they were picking the fruit when differentiating areas of the block for the different wines.

Overall, participating in the project helped V1P1 gain reliable information and greater autonomy to make decisions about practice change. They said: *“I feel like we’ve liberated ourselves from having to call someone for help, like having to call a consultant and say what do you think. I actually feel like we are the ones who will work out the answers ourselves now.... Yes, we will still always need to consult with people though, [...], but I just feel a lot more empowered to come up with our own answers.”* V1P1 added that *“It’s given us the confidence to test that [advice]”*

Trial Results

2023-2024

Trial 9: Mean botrytis bunch rot (BBR) severity and incidence for 408–551 bunches per trial strip on March 28, 2024. The product substitution (Intervene® instead of Swap®) was applied 7 days after the scheduled application Swap® on Dec. 20 (current practice). It was noted that the flower caps were still largely stuck on the flowers on December 20, whereas by December 27 the caps had largely blown off. Results need to be interpreted with care given the relatively low BBR severities. Again, results need to be interpreted with care given the relatively low BBR severities.

Product	Spray date	BBR incidence (%)	Mean BBR severity (%)
Swap®	Dec. 20	0	0
Swap®	Dec. 27	0.43	0.10
Intervene®	Dec. 27	2.2	0.25

2024-2025

Trial 20. The test treatment was omission of an application of wettable sulfur on October 14. A powdery mildew flag shoot was found outside the trial area in December and PM symptoms were also observed in a neighbouring vineyard. Results for BBR are presented in the table below. Mean botrytis bunch rot (BBR) severity and incidence for 168–188 bunches per trial strip on April 7, 2025. The result for Intervene® is the consequence of sampling one bunch with a botrytis severity of 30% (n = 168).

Product	Spray date	BBR incidence (%)	Mean BBR severity (%)
Swap®	Dec. 29	0	0
Swap® ^a	Dec. 19	0	0
Intervene® ^a	Dec. 19	0.6	0.18

^aTrial strips did not receive an application of sulfur on 14 October 2024.

Case Study V11

Vineyard	
Region of Tasmania	Tamar Valley
Total area	25–50 ha
Study participant	
Participant code	V11P1
Trial site	
Variety and trellis system	Sauvignon Blanc – three canes on with vertical shoot positioning.
Destination of grapes	Still wine, own winery
Trial topic/s	Leaf removal by machine
Trial number (identifier)	16
Trial results and outcomes	Summarised below
Mid-flowering date in 2024	First week of December (6 Dec.)

Production Context and Motivation

The vineyard is operated to produce fruit cost-efficiently, sustainably and of sufficient quality for estate-grown wines.

The compact bunches of Sauvignon Blanc promote development of botrytis bunch rot (BBR) to some degree every season. Unlike the mildew diseases, V11P1 said “....with botrytis, regardless of all the job that we do and leaf plucking or stuff like that, we are completely vulnerable. So then if we go the wet season, we know that we're going to get botrytis and we can't control it.” V11P1's was seeking ways to reduce bunch compactness in the Sauvignon Blanc and increase airflow in the bunch zone.

V11P1 described the trade-off between striving for higher crop yields and experiencing severe BBR severity: “We normally have to harvest Sauvignon Blanc a bit early because we can't reach - or we reach the Baumé, or we don't get a crop because of the botrytis. So last year [2023-24] was probably one of the years that we picked a Sauvignon Blanc with higher - closer to the desired maturity, but it was mainly because we drop [fruit]- we used to grow with four canes, so we were targeting probably 15 tonne per hectare, and last year we targeted probably 10 [tonne]. So then the 10 also get the crop a lot early.” V11P1 thus explained how lower yields and a shorter ripening period contributes to a lower proportion of mouldy fruit being removed from the crop: “So, yeah, it's a balance between getting greedy because you need the crop, or the [other way].”

V11P1 described the opportunities and challenges of machine harvesting and the processing of mouldy fruit: “Because the machine pick, you don't see it, so the machine pick is more forgiving in some occasions.” They recalled a high-yielding crop of Riesling grapes “probably with 18 tonnes per hectare” where they removed mouldy fruit twice before the grape harvest: “We pick after Easter and it was like chocolate, and they were still able to do a Riesling at the winery, probably was more expensive, all the treatment.”

Commercial Outcomes

V11P1 participated in the project in the second growing season only. There were no discernable differences in BBR severities among the test treatments which meant V11P1 had no “black and white” information upon which to justify change to their leaf removal technique. V11P1 observed the

row-to-row variability in average BBR severities and concluded: *“Probably we end up with more questions than a take-home message. So the take-home message is probably here that it's highly [variable] and it's not [something you were] expecting to find, so it's more factors involved. So, it just shows how complex it is. [...] it would have been probably different if we tried this in 2020, then it was a really wet season.”*

Trial Results

2024-2025

Trial 16. Mean severity and incidence of botrytis bunch rot (BBR) for 264 bunches per trial strip on March 20, 2025. There were 10 rows per treatment with two trial strips assessed within the 10 rows. The exception was or the ‘Morning side only’ treatment which comprised one trial strip within five treated rows at either end of the trial area. Treatment differences were not discerned because row-to-row variation for mean BBR severity was larger than treatment differences.

Leaf removal by machine on January 3, 2025.	BBR incidence (%)	Mean BBR severity (%)
Morning side only	13	3.6
No leaf removal	18	4.0
No leaf removal	12	2.5
Both sides of canopy	9	2.4
Both sides of canopy	13	4.1
Morning side only	19	4.7

Case Study V12

Vineyard	
Region of Tasmania	Coal River Valley
Total area	< 10 ha
Study participant	
Participant code	V12P1 and V12P2
Trial site	
Variety and trellis system	Riesling on Lyre trellis with vertical shoot positioning.
Destination of grapes	Still wine
Trial topic/s	Fungicide substitution (alternative chemical) for powdery mildew (PM)
Trial number (identifier)	23
Trial results and outcomes	Summarised below
Mid-flowering in 2024	Second week of December (~ 11 Dec.)

Production Context and Motivation

V12P1 and V12P2 wanted to feel confident in the products they were using but doing so was challenging. They noted that the “*newer chemistry*” was often more expensive and they were wary about claims by chemical suppliers who “*bombarded with lots of brochures, with fancy writing and [laughs] pictures and lovely diagrams.*” They explained: “*.....until you actually use it [a product] and you see the results in the vineyard, it's hard to get confidence in a particular product. We have products that we know and trust that have done a reasonable job in the past, but when a new product comes on the market, it's nice to be able to see some evidence really. That's what led me to this trial.*”

V12P1 said “*economic considerations*” are important and contextualised this by saying: “*Disease will cost us more than spending more money than I ever can in a season. If we see an issue in the vineyard, we'll fix it. That's our policy.*” They added: “*With the demand for fruit and - fruit quality's got to be good so everything has to be done spot on really. [...] We want our fruit to be the cleanest so it provides our winemakers the best opportunity to make the best wine. The best way to do that is to keep the fruit clean of disease.*” They would prefer to leave fruit rather than pick fruit that “*doesn't make the grade. We're not picking it.*”

Continual monitoring of vineyards and problem-solving were key focal points for V12P1. The trials were a means to assess a new practice: “*we would probably trial it in an area and see what the effectiveness was, and look if it was cost effective.*”. Overall, they were very open to new ideas, especially for canopy management, stating that “*the more we trial the more we'll know, so I'm very open to that.*” Participating in the project gave V12P1 the unique opportunity to do a trial because under the daily time constraints of their operation they would not have time to do so.

Commercial Outcomes

V12P1/P2 explained that they had not changed any aspect of their disease management strategies after running the trial but that they had become aware that “*we do need to make sure we get good application on them.*” (in reference to spray coverage challenges on the Lyre trellis system). V12P1/P2 appeared ambivalent about whether the results of the trial had given anything conclusive, with

V12P1 noting that *“I think the jury's still out on it [laughs]. But I think it's important to keep assessing and see where we go from there.”* They explained that the chemistry that they trialled *“worked to a certain extent, so it's not any worse than probably the older chemistry.”* They noted that every season is different, so they could not be sure about the impact of the season on the trial results.

V12P1 and V12P2 felt the most useful element of the trial process was receiving *“firm figures and an assessment on how the chemistry performed versus the alternative chemistry [...]”* Being able to effectively evaluate product effectiveness was important to V12P1 because it was challenging to decide what products to invest in when *“bombarded with information”* from chemical suppliers. V12P1 noted that such information is increasingly complicated as products become more specialised and targeted. They said: *“I think the hardest thing is working out what's the sales pitch and what's [laughs] actually real information.”*

The trials stimulated discussion about what they might wish to trial in the future. V12P1 said they had purchased a new sprayer and wanted to trial how well it would do with penetration and coverage, *“it's certainly caused a lot of discussion about the spray application, that's for sure [laughs], and what we can do to improve it.”*

Trial Results

2024-2025

Trial 23. Mean powdery mildew (PM) severity and incidence for 240 bunches per trial strip on January 30, 2025. The trial strip treated with Luna® Experience appeared to have more severe mildew in upslope locations than [Cabrio® + Teldor®]. Spray coverage in this Lyre trellis system was not tested. The disease gradient occurring naturally in the trial area was also not quantified. Therefore, results should be interpreted with caution. Trace amounts of BBR were observed in both trial strips near harvest.

Products applied on December 3, 2024	PM incidence (%)	Mean PM severity (%)
Luna® Experience	65	2.0
Cabrio® + Teldor®	70	1.2

Case Study V10

Vineyard	
Region of Tasmania	Tamar Valley
Total area	10–25 ha
Study participant	
Participant code	V10P1
Trial site	
Variety and trellis system	Two clones of Riesling on Vertical Shoot Positioning
Destination of grapes	Still wine, interstate winery
Trial topic/s	Fungicide addition (plant extract)
Trial number (identifier)	18
Trial results and outcomes	Summarised below
Mid-flowering date in 2024	Second week of December (~ 11 Dec.)

Production Context and Motivation

As a newly appointed manager, V10P1 was building their understanding of the site. While V10P1 operates with autonomy, their decisions need to be justified with interstate operators who are steering operations in the direction of organic viticulture: *“you may not get a question about it [a product application] until you’ve put it on. Then you need to look to cover your tail and justify yourself down the track, always.”* V10P1 values constant learning and improvement and believes in taking guidance from trials and research.

V10P1 incorporates an environmentally aware approach while also valuing *“the job to be done well and clean”*. V10P1’s advice on adapting to the weather: *“think on your feet, watch what’s going on, try and get your timings right”*. V10P1’s guiding principle is to produce *“quality fruit [so] they can make the best wine possible.”*

V10P1 had been informed that the severity of Botrytis bunch rot (BBR) in at this site in the previous season prompted an early harvest (for a dry wine style) to limit further disease development.

Commercial Outcomes

After one trial, V10P1 said: *“... the trial has directly given me a reason to change the spray program, and I think for the better.”* *“...I’ve never used any of those products [Novellus] before, so the reinforcement of the effectiveness of some of these was really helpful.”* V10P1 felt justified and confident in using a new spray: *“The Novellus, that’s something that wasn’t really predicted from [head office], and they haven’t questioned it. But I just felt I could go ahead and do that without any concerns; now I’ve got something that’s on...more than 50 per cent looked like it had a really good effect on half the block and didn’t do any damage to the other half of the block, so that’s a positive.”*

The trial results also helped V10P1 justify to the interstate owner and operations manager the cost of adding an extra Novellus® spray into the spray program. Referring to plans for the forthcoming season, V10P1 said: *“I’ve literally just added the extra [Novellus] spray to the program. That makes sense, it helped justify it. In my mind an extra bot spray earlier was already something you should have been doing, so it’s reinforced it, and I hope it’s effective into the future.”*

Trial Results

2024-2025

Trial 18: Mean botrytis bunch rot (BBR) severity and incidence for 224–256 bunches per trial strip (row) on March 25, 2025.

Riesling clone	Fungicide addition on December 4, 2024 at 10–30% capfall	BBR incidence (%)	Mean BBR severity (%)
1	No Novellus®	16	2.9
1	Novellus®	11	0.8
1	No Novellus®	18	2.9
2	No Novellus®	14	1.1
2	Novellus®	17	1.4

Case Study V7

Vineyard	
Region of Tasmania	East Coast
Total area	25–50 ha
Study participant	
Participant code	V7P1 (owner), V7P2 (manager)
Trial site	
Variety and trellis system	Chardonnay and Pinot Gris with vertical shoot positioning
Destination of grapes	Still wine, own winery
Trial topic/s	Extent of leaf removal by machine
Trial number (identifier)	3, 4 and 14, 15
Trial results and outcomes	Summarised below
Mid-flowering in 2023	Second week of December (~ 10 Dec.)
Mid-flowering in 2024	First week of December (~ 6 Dec.)

Production Context and Motivation

The long-term goal is to make vineyard operations efficient and sustainable in the broader context of Tasmania being a “*higher cost, higher quality*” wine sector. They reduce chemical inputs as much as possible but need preventative sprays to manage the risk of crop loss.

Botrytis bunch rot (BBR) was present in both varieties in 2022, impacting sparkling wine production from the Chardonnay grapes. V7P1 said: “*Good winemakers can work with a little bit of botrytis in a winery*” and in seasons when they had less BBR “*..it made it easier for the winery staff, less cost for having to try and tweak it*” to achieve desired wine quality.

V7P1 and V7P2 valued participation, with V7P2 describing their motivation as: “*...we’re always open to looking. [...] You tend to get in your own little groove quite easily and not necessarily try many things.*”

Commercial Outcomes

Towards the end of the project, V7P2 was transitioning to another wine business and production site. Nonetheless, V7P2 noted emphatically that “*I strongly reckon we [the sector] should be doing more trials.*” V7P2 contextualised this statement, adding that “*because climate’s changing, there’s new technology out there, both chemical, irrigation, and different thought processes and everything else.*”

V7P2 was also motivated to try alternative chemicals, chemicals from different ‘groups’, or omitting adjuvants. They also envisaged the need to evaluate different types of machinery for leaf removal and the timing of leaf removal just after flowering.

Trial Results

2023-2024

Trials 3 and 4: Mean botrytis bunch rot (BBR) severity and incidence for 160–214 bunches per trial strip (row) on March 20, 2024. There were some locations within the trial strips where BBR severities were similar for single and double-sided leaf removal.

Variety	Leaf removal by machine on 25 January, 2024 ^a	BBR incidence (%)	Mean BBR severity (%)
Chardonnay	East side of canopy only	13	0.9
Chardonnay	East and west sides	17	1.7
Pinot Gris	East side of canopy only	0	0
Pinot Gris	East and west sides	0	0

^aGrape bunches likely proceeded through véraison soon thereafter.

2024-2025

Trials 14 and 15: Mean botrytis bunch rot (BBR) severity and incidence for 240 bunches per trial strip (row) on March 18, 2025. There were some locations within the trial strips where BBR severities were similar for single and double-sided leaf removal.

Variety	Leaf removal by machine on 27 January, 2025 ^a	BBR incidence (%)	Mean BBR severity (%)
Chardonnay	East side of canopy only	28	3.0
Chardonnay	East and west sides	28	5.1
Pinot Gris	East side of canopy only	4.6	0.43
Pinot Gris	East and west sides	1.3	0.07

^aGrape bunches likely proceeded through véraison soon thereafter, although with some Pinot Gris berries were already softening.

Case Study V3

Vineyard	
Region of Tasmania	Huon Valley
Total area	< 10 ha
Study participant	
Participant code	V3P1 and V3P2
Trial site	
Variety and trellis system	Chardonnay with vertical shoot positioning.
Destination of grapes	Sparkling and still wine
Trial topic/s	Fungicide substitution (alternative chemical) for powdery mildew (PM)
Trial number (identifier)	10 and 21
Trial results and outcomes	Summarised below
Mid-flowering in 2023	Last week of November (~ 27 Nov.)
Mid-flowering in 2024	First week of December (~ 4 Dec.)

Production Context and Motivation

The site was previously an apple orchard. V3P2 hoped that growing a small block of grapes might be a *“good retirement, semi-retirement project.”* It has been a challenging journey so far with fruit damaged in previous seasons by bushfires and hail. V3P1 is studying viticulture and both participants are learning how to produce good quality, disease-free grapes. V3P1 said they were more *“quality than quantity driven, for sure.”*

Grape buyers require fruit without visible powdery mildew (PM) which has been an issue at the northern end of the block. V3P2 explained: *“You're not going to go and trial two different types of sprays yourself in your own time in the vineyard. Like on one variety, it's cheaper, it's consistent to use the same spray, so it's an opportunity to try something else that might not have been suggested to us otherwise. So, it's a good opportunity for that and possibly from that, we can change that one spray that we do use as a result. Then that was our trial, was to try the different spray at that specific time. So, we can do that. Otherwise, we wouldn't have done that ourselves.”*

Commercial Outcomes

V3P1 said that they had become more aware of the *“critical time of that particular spray at that 80 per cent capfall [...] that's something that I feel more aware of now.”* V3P1 had also made several changes to their cultural practices to aid spray penetration and coverage. They now also have access to more rigorous methods for assessing disease and keeping records.

V3P1 noted that they did not have as much of an issue with BBR in recent years but had been able to learn more about this disease from the other trial collaborators. They also felt they had gained knowledge around the impact of PM and BBR, and how to manage them. Overall, V3P1 said that participating in the trials allowed them to make more cost-effective operational decisions: *“No one wants to do more labour or more spraying than is necessary, so it can make things cost effective in the long run by doing trials like this and yeah, seeing what's possible and not possible.”*

V3P1 concluded that they had become more aware of how to manage variability in the seasons, because *“no two seasons are going to be the same.”* They had learnt more about how to adjust their

practices according to the challenges presented by the season, and *“treating the disease alongside the season as much as your regular practices.”*

Trial Results

2023-2024

Trial 10. The spray timing of interest was the mid-flowering spray on December 12. The test treatment was a tank mixture of Vivando® and Teldor® applied by the neighbouring vineyard manager using their spray equipment. This treatment was compared with a tank mixture of wettable sulfur plus Intervene® applied by the vineyard owner using their own spray equipment. No symptoms of powdery mildew were observed on the sampled bunches in the trial area; however, trace amounts of mildew were evident on some non-sampled bunches on vines regardless of how they were treated. Trace amounts on BBR were observed near harvest.

2024-2025

Trial 21. Same site as Trial 10 in 2023/24. Mean powdery mildew (PM) severity and incidence for 216–224 bunches per trial strip on February 6, 2025. The large difference in PM incidence may be related to spray coverage. Trace amounts on BBR were observed near harvest.

Products applied on December 9, 2024	Spray equipment	PM incidence (%)	Mean PM severity (%)
Vivando® + Teldor®	Owned and operated by neighbouring vineyard manager	2.8	0.01
sulfur + Intervene®	Owned and operated by V3P2	20.1	0.22